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File 605/8

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**PROGRESS REPORT**  
**FOR**  
**MONTH OF FEBRUARY 1960**

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**BROADBAND ANTENNA, FILTER AND DETECTOR SYSTEMS**

**Purpose:** To develop a system of antennas, filters and detectors for the 50 mc to 40,000 mc frequency range.

**Personnel:** Electrical Engineers: [REDACTED] 25X1

Mathematicians: [REDACTED] 25X1

Mechanical Engineer: [REDACTED] 25X1

**Status:** Development of a compact 50 mc to 500 mc LP antenna has continued. The model to be printed on aluminum coated mylar has been delayed until delivery of the material. The modifications mentioned in the January report concerning the 500 mc to 10,000 mc printed circuit antenna have been found to be unnecessary. The difficulties encountered in testing of this antenna were found to lie in the pattern range facility. The trouble has been eliminated and testing has continued. The feed cable has been modified to include a two inch length of microdot cable at the high frequency end of the antenna. This modification improves the high frequency radiation characteristics of the antenna. Work has continued on the 10,000 mc to 40,000 mc horn antenna, detector and dielectric waveguide inserts. Difficulties are being experienced in the fabrication of the dielectric fin inserts. The difficulties should be alleviated as the fabrication techniques are improved.

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A prototype R.F. filter has been obtained from Microphase Corporation and with the exception of physical dimensions, which they indicate are reasonably flexible, the electrical performance meets the specifications desired. Investigation of the filter network synthesis has continued.

Three E-H tuners have been obtained from PRD. These will be utilized in the testing of the 10,000 mc to 40,000 mc horn antenna and associated components.

Future Plans: Work in all phases will continue. Sensitivity evaluation of the 50 mc to 10,000 mc crystal detector assemblies will be conducted using the VA-7 video amplifier unless instructions are received to proceed using the VA-9 or its modified counterpart. A strip transmission line low pass filter to be used in conjunction with the synthesized bandpass filter will be constructed and evaluated during the next period.